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UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Economics

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U. S. Department of Agriculture

January 25, 1934

UNITED STATES STANDARDS FOR GRADES 1/ OF CANNED TOMATO PULP

DEFINITION

Canned tomato pulp is the product resulting from the concentration of the screened or strained fleshy and liquid portions of ripe tomatoes, except those portions from skin and core trimmings, with or without the addition of salt. The product contains not less than 8.37 percent of tomato solids, (specific gravity 1.035), is packed in hermetically sealed containers, and sterilized by heat. When examined according to the Howard method, mold may show in not to exceed 50 percent of the microscopic fields; bacteria not in excess of one-hundred million per cubic centimeter, and yeast and spores not in excess of 125 per 1/60 cubic millimeter.

1/ These standards for grades are so framed as to exclude substances not mentioned and in each instance imply that the product is clean and sound.

GRADES OF CANNED TOMATO PULP

U. S. GRADE A (Fancy) canned tomato pulp consists of tomato pulp of good, red, ripe tomato color; is practically free from particles of seeds, specks, skins, cores, and other defects; possesses a good typical tomato pulp flavor, and scores not less than 85 points when scored according to the scoring system outlined herein.

U. S. GRADE C (Standard) canned tomato pulp possesses a fairly good color in which red predominates; is reasonably free from particles of seeds, specks, skins, cores, and other defects; has a fairly good tomato pulp flavor,

and scores not less than 70 points, nor more than 84 points when scored according to the scoring system outlined herein.

OFF-GRADE (Substandard) canned tomato pulp is pulp which fails to comply with the requirements of the foregoing grades, but within the legal requirements for mold, yeast and bacteria, or scores below 70 points when scored according to the scoring system outlined herein, or, when any one of the grading factors falls in subdivision D. Tomato pulp having mold, yeast, bacteria, or spores in excess of the limits specified in the definition will be certified as "Illegal," when certificated under the Farm Products Inspection law, or the United States warehouse Act.

Amplification of Grade Designations

When certificates of grade are issued under the Farm Products Inspection law, or the United States warehouse Act of August 11, 1916, as amended, the quality designation shall, in addition to the grade, show the Specific Gravity.

For example, a certificate of grade would indicate:

U. S. GRADE A - Specific Gravity 1.044.

PREREQUISITES TO GRADING

Condition of Container

Containers shall be sound and clean. If the containers are metal, they shall be free from rust and serious dents and the ends shall be flat or concave.

Condition of Package and Label

If cased, the canned tomato pulp shall be packed in clean, neat, unbroken packages. If labeled, the labels on the container and package shall

be clean and shall be neatly and securely affixed, and shall comply in all respects with the requirements of the Food and Drugs Act.

Fill of Container

Cans of tomato pulp shall be filled as full as is consistent with the maintenance of quality.

Cans of tomato pulp will be considered as of standard fill if the head space, measured from the top of the product to the underside of the lid, does not exceed 10 percent of the total inside height of the container.

A certificate of grade covering canned tomato pulp that does not meet the above requirements shall bear the legend,

"Below U. S. Standard"

"Slack Fill"

Certificates of grade issued under the Farm Products Inspection law, or the United States warehouse Act, will indicate the net weight of the product.

ASCERTAINING THE GRADE

The grade of canned tomato pulp may be ascertained by considering, in addition to the foregoing requirements, the following factors: Color, Absence of Defects, and Flavor. The relative importance of each factor has been expressed numerically on a scale of 100. The maximum number of credits that may be given for each factor is:

	Points
I. Color - - - - -	50
II. Absence of Defects - - - - -	20
III. Flavor - - - - -	<u>30</u>
TOTAL - - - - -	100

Ascertaining the Rating of Each Factor

The essential variations within each factor are so described that the value may be ascertained for each factor and expressed numerically.

The numerical ranges within each factor are inclusive. For instance, the range 13 to 15 means 13, 14, and 15.

I. COLOR.

(A) Tomato pulp that is of good, red, ripe tomato color may receive a credit of 43 to 50 points. (A score of 43 points or more will be credited pulp having color equal or better than that produced by spinning a combination of the following Munsell color discs: R65(5R 2.6/13)-(glossy finish); YR21(2.5YR 5/12)-(glossy finish); N1(glossy finish); N4(mat finish).

(C) If the tomato pulp possesses a fairly good color with red predominating, a credit of 35 to 42 points may be given. Tomato pulp that falls in this classification shall not be graded above U. S. GRADE C (Standard), regardless of the total score for the product. (To score 35 points or over, the color must be equal or better than that produced by spinning a combination of the following Munsell color discs: R45(5R 2.6/13)-(glossy finish); YR28(2.5YR 5/12)-(glossy finish); N1(glossy finish); N4(mat finish).

(D) When the color of tomato pulp is poor, being reddish brown, or ranges in the orange to yellow group of colors, a credit within the range of 0 to 34 points may be given.

II. ABSENCE OF DEFECTS. - Under this factor, workmanship is considered, including the presence of particles of seeds, specks, skins, or cores.

- (A) When the product is practically free from such defects, a credit of 16 to 20 points may be given.
- (C) If defects are present, but not noticeably prominent, a credit of 13 to 15 points may be allowed. Tomato pulp that falls in this classification shall not be graded above U. S. GRADE C (Standard), regardless of the total score for the product.
- (D) Tomato pulp in which the defects are prominent may receive a credit within the range of 0 to 12 points.

III. FLAVOR. - This factor refers to the palatability of the tomato pulp.

- (A) If the product possesses a clean, typical well developed tomato pulp flavor, a credit of 26 to 30 points may be given.
- (C) When the product possesses an acceptable tomato pulp flavor, a credit of 21 to 25 points may be allowed. Tomato pulp that falls in this classification shall not be graded above U. S. GRADE C (Standard), regardless of the total score for the product.
- (D) Tomato pulp that possesses a foreign or "off" flavor, being either sour, scorched, or bitter, may not receive above 20 points in the score.

Certificate No. _____

U. S. DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Economics
SCORE SHEET FOR CANNED TOMATO PULP

Applicant _____
Address _____

Lot or Car No. _____
No. of cases in lot _____

Can size _____

Samples submitted by _____

Can Mark	Label	Net Weight (in ozs.)	Vacuum	FACTORS	Max.	Points	Score: Allowable
				I. COLOR	50	(A) 43 - 50 (C) 35 - 42 (D) 0 - 34	
				II. ABSENCE OF DEFECTS	20	(A) 16 - 20 (C) 13 - 15 (D) 0 - 12	
				III. FLAVOR	30	(A) 26 - 30 (C) 21 - 25 (D) 0 - 20	
				TOTAL SCORE	100	- - - -	
				GRADE	- -	- - - -	
				SPECIFIC GRAVITY			
				MOLD, YEAST AND/OR BACTERIA COUNT			

Remarks _____

Graded by _____

Date _____

Fee \$ _____

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UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Economics

January 25, 1934

UNITED STATES STANDARDS FOR GRADES 1/ OF TOMATO CATCHUP
(Canned or Bottled)

DEFINITION

Tomato catchup is the concentrated product made from the pulp and juice of red, ripe tomatoes (exclusive of seeds, skins, and cores), with the addition of vinegar, salt, spices and other seasoning, sugar and/or dextrose, packed in hermetically sealed containers, and sufficiently processed by heat to preserve the product. When examined according to the Howard method, mold filament may show in not to exceed 50 percent of the microscopic fields; bacteria not in excess of one-hundred million per cubic centimeter, and yeast and spores not in excess of 125 per 1/60 cubic millimeter.

1/ These standards for grades are so framed as to exclude substances not mentioned and in each instance imply that the product is clean and sound.

GRADES OF TOMATO CATCHUP

U. S. GRADE A (Fancy) tomato catchup possesses a good red, ripe tomato color; good consistency; has a specific gravity of not less than 1.15; uniform smooth finish; is practically free from particles of seeds, specks, skins, cores, and other defects; possesses a good flavor; and scores not less than 85 points when scored according to the scoring system outlined herein.

U. S. GRADE C (Standard) tomato catchup possesses a fairly good red color; fairly good consistency; has a specific gravity of not less than 1.11; fairly good finish; is reasonably free from particles of seeds, specks, skins, cores, and other defects; possesses an acceptable flavor; and scores not less than 70 points, and need not score more than 84 points when scored according to the scoring system outlined herein.

OFF-GRADE (Substandard) tomato catchup is tomato catchup that fails to comply with the requirements of the foregoing grades, but within the requirements for mold, yeast, and bacteria, or that scores below 70 points when scored according to the scoring system outlined herein, or when any one of the grading factors falls in subdivision D.

PREREQUISITES TO GRADING

Condition of Container

Containers shall be sound and clean. If the containers are metal, they shall be free from rust and serious dents, and the ends shall be flat or concave.

Condition of Package and Label

If cased, the tomato catchup shall be packed in clean, neat, unbroken packages. If labeled, the labels on the container and package shall be clean and shall be neatly and securely affixed, and shall comply in all respects with the requirements of the Food and Drugs Act.

Fill of Container

Containers of tomato catchup shall be filled as full as is consistent with the maintenance of quality.

Cans of tomato catchup will be considered as of standard fill if the head space, measured from the top of the product to the underside of the lid, does not exceed 10 percent of the total inside height of the container.

A certificate of grade covering tomato catchup that does not meet the above requirements shall bear the legend,

"Below U. S. Standard"

"Slack Fill"

ASCERTAINING THE GRADE

The grade of tomato catchup may be ascertained by considering, in addition to the foregoing requirements, the following factors: Color, Consistency, Absence of Defects, and Flavor. The relative importance of each element has been expressed numerically on a scale of 100. The maximum number of credits that may be given for each factor is:

	Points
I. Color - - - - -	30
II. Consistency - - - - -	30
III. Absence of Defects - - - - -	15
IV. Flavor - - - - -	<u>25</u>
TOTAL - - - - -	100

Ascertaining the Rating of Each Factor

The essential variations within each factor are so described that the value may be ascertained for each factor and expressed numerically. The numerical ranges within each factor are inclusive. For instance, the range 13 to 15 means 13, 14, and 15.

I. COLOR.

(A) Tomato catchup that is of good red, ripe tomato color may be given a credit of 25 to 30 points for this factor. (This color is the equivalent, or better than that produced by spinning a combination of the following Munsell color discs: R65(5R 2.6/13)-(glossy finish); YR21(2.5YR 5/12)-(glossy finish); N1(glossy finish); N4(mat finish). However, tomato catchup, when packed in glass and showing a trace of discoloration in the "neck" of the bottle, shall not be graded above U. S. GRADE C (Standard), regardless of the total score for the product.

(C) If the tomato catchup possesses a fairly good color with red predominating, a credit of 21 to 24 points may be allowed. Tomato catchup that falls in this classification shall not be graded above U. S. GRADE C (Standard), regardless of the total score for the product. (This color is the equivalent, or better than that produced by spinning a combination of the following Munsell color discs: R53(5R 2.6/13)-(glossy finish); YR28(2.5YR 5/12)-(glossy finish); N1(glossy finish); N4(mat finish).

(D) If the color is poor, being brownish red or orange, or if the catchup in the "neck" of the bottle is badly discolored, a credit within the range of 0 to 20 points may be given.

II. CONSISTENCY. - The factor of consistency refers to the homogeneity of the product and its ability to retain a mounded form when emptied from the container on a grading tray. The tendency of the product to remain homogeneous, or for the free liquid to separate from the insoluble solids, is to be noted in this connection.

- (A) Tomato catchup that possesses a good consistency, with not more than a slight separation of free liquor, and has a specific gravity above 1.15, may be given a credit of 25 to 30 points for this factor.
- (C) If the product possesses but a fair consistency, the free liquid tending to separate readily, but has a specific gravity of not less than 1.11, a credit of 21 to 24 points may be given. Tomato catchup that falls in this classification shall not be graded above U. S. GRADE C (Standard), regardless of the total score for the product.
- (D) If the separation of free liquid is pronounced and the mass is thin and spreads very readily, a credit within the range of 0 to 20 points may be allowed.

III. ABSENCE OF DEFECTS. - The factor relating to defects deals principally with workmanship, having reference to the degree of freedom from objectionable substances such as particles of seeds, specks, skins, or core.

- (A) Tomato catchup that is practically free from such defects may be given a credit of 13 to 15 points for this factor.

- (C) If defects are present but not prominent, a credit of 11 to 12 points may be allowed.
- (D) Tomato catchup in which the defects are prominent may be given a credit within the range of 0 to 10 points.

IV. FLAVOR. - The quality of flavor of tomato catchup shall be classified from the standpoint of palatability.

- (A) Tomato catchup that possesses a clean, aromatic, typical and well developed tomato flavor, may be given a credit of 22 to 25 points for this factor.
- (C) If the tomato catchup possesses an acceptable flavor, it may be given a credit of 17 to 21 points. Tomato catchup that falls in this classification shall not be graded above U. S. GRADE C (Standard), regardless of the total score for the product.
- (D) If the tomato catchup possesses a poor, or a distinctly "off" flavor such as scorched or bitter, it may not be graded more than 16 points.

Certificate No. _____

Lot or Car No. _____

No. of cases in lot _____

Can size _____

U. S. DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Economics
SCORE SHEET FOR TOMATO CATCHUP
(Canned or Bottled)

Applicant _____

Address _____

Samples submitted by _____

Type of Container	Code	Type of Closure (if bottled)	Label	Net Weight (in ozs.)	Vacuum	FACTORS	Max. : Points	Score: Allowable
						I. COLOR	30	(A) 25 - 30: (C) 21 - 24: (D) 0 - 20:
						II. CONSISTENCY	30	(A) 25 - 30: (C) 21 - 24: (D) 0 - 20:
						III. ABSENCE OF DEFECTS	15	(A) 13 - 15: (C) 11 - 12: (D) 0 - 10:
						IV. FLAVOR	25	(A) 22 - 25: (C) 17 - 21: (D) 0 - 16:
						TOTAL SCORE	100	- - - - :
						GRADE	- - -	- - - - :
						SPECIFIC GRAVITY		
						MOLD, YEAST AND/OR BACTERIA COUNT		
						Remarks		

